

Spectroscopic methods for determining of zonal soils erosion (Chuvash Republic, Russia)

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Abstract

© Published under licence by IOP Publishing Ltd. Results of spectrographic study of zonal soils with different erosion degree on the territory of the Chuvash Republic are given. In the points of spectrographic research, the soil specimens were taken and agrochemically tested. Changes in received spectrograms were analyzed in soils subtypes context with subsequent comparison with agrochemical indicators. The obtained data will help to develop new rapid methods for determining soil fertility parameters for agricultural lands based on spectroscopic physical principles.

<http://dx.doi.org/10.1088/1755-1315/107/1/012024>

References

- [1] 1977 Klassifikatsiya i diagnostika pochv SSSR (Classification and diagnostics of soils of the USSR) (Moscow: Kolos) 257 (in Russian)
- [2] 1973 Obshchesoyuznaya instruktsiya po pochvennym issledovaniyam i sostavleniyu krupnomasshtabnykh pochvennykh kart zemlepol'zovaniya (All-union instruction on soil surveys and large-scale soil maps of land use composition) (Moscow: Kolos) 244 (in Russian)
- [3] Kostyuchenko P A 1937 Eurasian Soil Science 8 (in Russian)
- [4] Kozmenko A S 1948 Agrolesomelioratsiya (Moscow) 156 (in Russian)
- [5] Lidov V P and Didurenko N F 1955 Eurasian Soil Science 11 15-21 (in Russian)
- [6] Litvin L F 1998 Geomorphology 2 13-22 (in Russian)
- [7] Sobolev S S 1960 Development of erosion processes in the European part of the USSR and their control II (Moscow) (in Russian)
- [8] Sobolev S S 1961 Protection of soils from erosion and increase of their fertility (Moscow: Selkhozizdat) 231 (in Russian)
- [9] Andreev S I 1971 Soils of the Chuvash ASSR 1 (Cheboksary: Chuvash publ. house) The history of development of soils of the republic and human impacts on them 358 (in Russian)
- [10] Mikhailov F Y 1973 Reliable protection for our soils Proc. (Cheboksary: Chuvashgiz) (in Russian)
- [11] Federal Law No 101-FL Concerning agricultural lands turnover 24.07.2002 - ref-separator -
- [12] Government Decree No 612 Concerning approval of criteria of essential decrease of agricultural lands fertility 22.07.2011 - ref-separator -
- [13] Linker R 2011 Fourier transforms - new analytical approaches and FTIR strategies ed Goran Nikolic 385-404 Published online 01 April 2011
- [14] Stenberg B, Viscarra Rossel R A, Mouazen A M and Wetterlind J 2010 Advances in Agronomy 107 (Burlington: Academic Press) 215
- [15] Campbell D, Shiley D and Curtiss B 2013 Measurement of soil mineralogy and CEC using near-infrared reflectance spectroscopy (Colorado, 80301, USA: ASD Inc., a PANalytical company Boulder)
- [16] McBratney A B, Minasny B and Viscarra Rossel R 2006 Geoderma 136 272-278

- [17] Cécillon L, Barthès B G, Gomez C, Ertlen D, Genot V, Hedde M, Stevens A and Brun J J 2009 E.J. of Soil Sci. 60 770-784
- [18] Rossel R A V, Walvoort D J J, McBratney A B, Janik L J and Skjemstad J O 2006 Geoderma 131 59-75
- [19] Borenstein A, Linker R, Shmulevich I and Shaviv A 2006 Applied Spectroscopy 60 1267-1272
- [20] Canasveras J C, Barron V, del Campillo M C, Torrent J and Gomez J A 2010 Geoderma 158 78-84
- [21] Sirotkin V, Vasyukov S and Usmanov B 2016 Water resources, forest, marine and ocean ecosystems conference Proc. SGEM 2016 II 357-362 book 3
- [22] Sirotkin V, Vasyukov S and Usmanov B 2017 Water resources, forest, marine and ocean ecosystems conference Proc. SGEM 2017 17 639-646